

## NEW YORK HERALD

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THE NEW YORK HERALD was founded by James Gordon Bennett in 1833. It remained the sole property of its founder until his death in 1872. His son, also named James Gordon Bennett, succeeded to the ownership of the paper, which remained in his hands until his death in 1919. It then passed to the ownership of Frank A. Munsey, its present owner, in 1920.

SUNDAY, DECEMBER 3, 1922.

### Pork Barrel Handicaps.

Chairman LANGLEY of the House Committee on Public Buildings and Grounds declares he is going to make a supreme effort to jam through a pork barrel bill to the Treasury to the tune of somewhere between a hundred million and half a billion of dollars. He is bent on jamming it through, although the responsible leadership of the Senate and the House tries to block the way. He is bent on jamming it through, if the President's veto should await it.

But if Chairman LANGLEY could put his pork barrel bill through Congress and if he could get it re-passed over the veto of President HARRISON, who will stand for no public squander and who insists on Government economy all along the line—if Chairman LANGLEY could have a summer picnic in passing his pork barrel bill through Congress, where does he think he could get the money to pay the bill?

The national Treasury is now wrestling with an annual deficit which may run as high as three-quarters of a billion of dollars. It faces the redemption or refunding of early maturing bonds and other obligations amounting to billions of dollars. And it sees the prospect in the next fiscal year of another stupendous deficit.

Congress cannot check out of the Treasury money that is not in the Treasury to check out. Congress cannot put the money into the Treasury without more taxation. Congress cannot impose more taxes on the country without hitting the pocket of the American public. And the Congress that would venture to hit the American pocket harder than it is hit now with insufferable taxes does not sit in the Capitol to-day and will not in the near future unless it is bereft of all its senses.

A pork barrel that went through Congress on greased skids but came out with a yawning emptiness of dollars to mock the pork barrel grabbers would not get anybody anywhere. Chairman LANGLEY will have time to think it all over before he makes his final arrangements to roll his pork barrel over the leaders of Congress and the President of the United States.

### Surveying by Airplane.

A complete survey, the first ever made, of the delta of the Mississippi River has been added to the long list of the airplane's achievements in the field of constructive public service.

This vast alluvial area extending into the Gulf of Mexico has heretofore been largely beyond the resources of surveying skill and equipment. Treacherous marshes inaccessible either on foot or by boat made the establishment of lines and boundaries difficult if not impossible. The semi-liquid silt rises from a few inches to as much as ten feet above the water level. Tall vegetation blocks the vision. Lofty signals and especially constructed observation platforms and tripods have been brought into service by the surveyors, but at best only inadequate and far from reliable maps could be made.

The airplane had previously demonstrated its usefulness in the survey of regions inaccessible by other means and it was tried on the Mississippi delta. The amphibious seaplane type furnished by the Coast and Geodetic Survey by the Navy Department was used with excellent results. More than a thousand photographs were taken from aloft. Assembled they form a picture of the entire territory of the delta.

They reveal many heretofore totally unknown lakes and ponds. They disclose material changes in channels and the development of several new sub-deltas since the last survey was made. A very important change near the South Pass, the main gateway to the river, was noted. Former surveys showed the west bank of the pass as a marshy area extending four miles into the Gulf. The airplane photographic maps reveal it as a narrow bank, so narrow that the waters may at any time break through, radically changing the mouth of the river.

Of course the airplane maps are as

unstable in value as the constantly changing topography of the region itself. Aerial surveying of the delta must be necessarily somewhat in the nature of a continuous performance. According to estimates made some years ago but still regarded as reasonably reliable, the Father of Waters delivers in the Gulf of Mexico every year about one square mile of silt 241 feet deep. This annual accretion naturally involves continuous displacements and constantly shifting channels. It is now the airplane's job to keep close track of these changes.

### The Swiftest Star.

The Harvard astronomers have timed a star that moves through space more rapidly than any other celestial body the speed of which they have been able to measure. This is the star RZ Cephei, a very distant star of the tenth magnitude, too faint to be seen with the naked eye. It moves at the rate of 683.5 miles a second, or nearly two and a half million miles an hour.

RZ Cephei could circle the earth in thirty-eight seconds. Four seconds would suffice for it to travel between New York and San Francisco. Between New York and Chicago, or New York and Jacksonville, Florida, its passing would be accomplished in the twinkling of an eye.

With all its speed it would take RZ Cephei a longer time to reach the earth than it is easy for the human mind to grasp. This star is 3,800 light years away from us, and it would take the star itself about 266 times as long to make the journey as it does the light waves recorded on the photographic plates of the astronomers.

When EMERSON gave his advice about hitching your wagon to a star he should have been more specific. He should have mentioned RZ Cephei.

### A National Theater Again.

When AUGUSTUS THOMAS as executive chairman of the Producing Managers Association announced the organization of a committee to found a national theater the case of the Equity Players immediately came to mind.

The society of which Mr. THOMAS is the head is composed of the managers. The Actors Equity Association, as its name shows, is the union of players which stands opposed to the managers. The Equity Players have given two new dramas this season at the Forty-eighth Street Theater, which they occupy under lease for a year. It was perhaps inevitable that the managers should want to show what they can do.

Their plan, as it was made public, seems vague. Unlike most national theater projects, this one does not look to the erection of a sumptuous building similar to the New Theater, now called the Century, which was the scene of the last previous effort to establish a more or less national theater. Beyond the expression of a desire to organize two companies, one to play Shakespeare and the other to be devoted to the contemporary drama, there is nothing more definite about the new organization than about the purposes of the Drama League or other associations intended to uplift the long suffering theater.

Yet its purposes are of course admirable. Anything tending to better the drama or any other art is praiseworthy in a high degree. It is also fair that the managers should have the opportunity to show what they can do in this direction. The actors have not distinguished themselves. With the services of many well known players at their disposal there has so far been neither brilliant artistic success nor commercial prosperity to crown their labors in Forty-eighth street.

They have indeed emphasized again the fact that the manager—even if he is just as commercial as his critics paint him and just as strident when he looks toward the stage or the box office—seems nevertheless to be a necessity in any properly conducted amusement enterprise. It is only fair therefore that the Producing Managers Association should have its opportunity now that the Equity Players have given the public an exhibition of their ability to conduct a theater.

### Maine Again Points the Way.

Impressive statistics arranged by L. R. Goss present in compact form the outstanding facts about our vanishing forests.

In round numbers we have a forest capital of approximately 750 billion cubic feet of standing timber. To this capital we are adding at the rate of about six billion cubic feet annually.

Against this account we are drawing at the rate of twenty-six billion cubic feet every year. Our capital, in other words, is shrinking at the rate of twenty billion cubic feet annually. At this rate our standing timber will be exhausted in less than thirty-eight years.

Steadily and with constantly accelerating speed the timber line has been falling back across the continent. First New England's timber and then the virgin forests of New York, Pennsylvania, Ohio, and so on westward, went down. At a date not remote lumber was one of Pennsylvania's greatest exports. To-day it is one of her heaviest imports.

Only a few years ago Michigan's timber supply seemed inexhaustible. Michigan lumber went far and wide over the country. It brought a heavy money return into the State. Michigan now pays a \$6,000,000 freight bill every year on the lumber she has to buy beyond her own borders. From stronghold after stronghold our for-

ests have been driven until now, seemingly, they are making their last stand on the Pacific coast.

But there is one exception. Maine is so far from being deforested that SAMUEL T. DANA, Forest Commissioner, was able to tell an audience in Augusta a few days ago that 75 per cent of Maine's land area, that is to say 23,000 of the approximately 30,000 square miles of the State's surface, is covered with forests. Much of the most valuable standing timber has been taken away, but a great area of forest remains.

Even though the timber is not all of the finest quality forests have other than their mere lumber value. They conserve water power resources, for one thing, and in Maine these resources rank next to those of New York, California and Washington. And, in the case of Maine particularly, the forest's value as a shelter for wild game is not to be overlooked. Wild game in abundance means tourists in abundance, and Maine, like the other New England States, counts upon tourists as an important source of income.

But the Dirigo State as an exception in no way weakens the disturbing warning of our impending timber bankruptcy. It rather strengthens it. In addition it points the way to reforestation possibilities.

### American Memorial Coins.

Issues of commemorative, or, as they are often called, souvenir, coins have been comparatively few in the United States. Within the last ten years there have been eight of these coins, a greater number than in the whole previous history of the country.

These recent issues, however, attracted attention to a degree which would indicate that coinage commemorative of American events will be more frequent than it has been in the past.

The first of the memorial coins appeared in conjunction with the Columbian Exposition at Chicago in 1893 commemorating the 400th anniversary of the discovery of America. Two silver coins were issued: the Columbian half dollar, bearing on the obverse a portrait of COLUMBUS and on the reverse a picture of a three masted caravel, and the Isabella quarter, with a bust of Queen ISABELLA of Spain on the obverse and a kneeling woman with a distaff and the inscription "Board of Lady Managers" on the reverse.

The design of these coins provoked considerable adverse criticism, especially that of the half dollar. The portrait of COLUMBUS might, according to the critics, be that of DANIEL WEBSTER, HENRY WARD BEECHER or SITTING BULL, and the picture of the caravel resembled a boat on wheels more than anything else. The plan of distribution of these coins was also adversely commented upon. Apparently the original intention was that they were to be preserved as souvenirs and also used for admission to the exposition grounds.

The plan of selling them for twice their value grew out of the need for help in paying the cost of the fair. "The precedent, good or bad, of charging at least double their face value," says HOWARD WOOD in "The Commemorative Coinage of the United States," which has just been published, "was instituted with the first commemorative coinage." The Columbian pieces not only were the forerunners of our souvenir coins but the plan of their distribution was that usually followed in all subsequent issues.

The next memorial coin was the Lafayette dollar, a silver coin bearing the portraits of LAFAYETTE and WASHINGTON and a reproduction of PAUL BARTLET's equestrian statue of LAFAYETTE in Paris. The issue was for the purpose of obtaining funds to complete this statue. The dollar was interesting because on it for the first time one of our Presidents was portrayed on a governmental coin. It was followed by the Jefferson and McKinley dollar issued under date of 1903 for the Louisiana Purchase Exposition, which was held in 1904, and the Lewis and Clark dollar for the Portland, Oregon, Exposition, in 1905. Then came the souvenir coins of the Panama-Pacific Exposition, a silver half dollar, a gold dollar and a quarter eagle and two fifty dollar gold pieces, one of which was octagonal in shape, recalling the eight sided California "slugs" of the gold days.

The McKinley memorial gold dollar was issued in 1917 to assist the project of building a memorial to the President at his birthplace, Niles, Ohio. A centennial half dollar was struck for Illinois in 1918, commemorating the anniversary of the State's admission to the Union. It was the first souvenir piece for an incident of this kind. Maine's centenary was commemorated in a similar way in 1920, and those of Missouri and Alabama in 1921. The Alabama coin had a portrait of Governor KILPATRICK, the first instance of the portrayal of a living person on a coin of this country. Two other historic incidents were commemorated by souvenir coins, the tercentenary of the landing of the Pilgrim Fathers and the one hundredth anniversary of the birth of GRANT.

Much of the earlier criticism of these souvenir coins grew out of a misunderstanding of the part which the Government had in their production. They were not issued and put into circulation as commemorative postage stamps were. The Government had nothing to do with memorial coins beyond legalizing them by act of Congress and striking them by its mints. The organizations for which these pieces were made were not always successful in disposing of them. Mr. WOOD says that at the close of the Columbian Exposition

about 3,000,000 of the pieces struck for it were unsold. They were subsequently thrown into circulation at their face value and became the only souvenir coins that are familiar to the general public now.

There is no doubt that commemorative coins have increased greatly in popularity in the last few years and that future issues will be frequent. Commemorative coinage is almost as old as coinage itself; the Greeks, Romans and medieval nations produced memorial pieces of a high degree of artistic skill. The improvement in this branch of coinage should come and undoubtedly will come in better workmanship and designs. Past ages left high standards for the modern coin makers to attain.

### After Magellan.

When the ninety-eight foot motor cruiser Speejaaks put in at Miami Thanksgiving Day she had fulfilled the promise her owner, ALBERT Y. GOWAN of Chicago, made for her that she would circumnavigate the globe.

The Speejaaks has earned special distinction because performances similar to hers are often attempted and often abandoned before their completion. Every year brings its succession of hardy spirits who plan to circle the world in something less reassuring than the vast interior of a modern liner. Many of them really do rig up their craft and start; a few weeks later we read that they have reached somewhere or other and that is the last we hear of them.

But the Speejaaks came back to the place she started from with 35,000 miles of blue water behind her. Her tonnage is 100. That is exactly the average struck by the tonnage of the five vessels which left the port of Seattle, August 10, 1919, under MAGELLAN. Two of MAGELLAN's ships were of 150 tons, two of 90 and one of 60 tons. One of them, the Vittoria, got back to Spain in September, 1922, having completed, 400 years ago, the first voyage round the world.

Strictly speaking, MAGELLAN was not the first man to circumnavigate the globe. He did not complete the voyage with the Vittoria, but died in the Philippines, from a wound inflicted by a poisoned arrow. In justice, however, he is fully entitled to his distinction, because on a previous voyage eastward he reached Banda Island, in the Malay Archipelago. The way home from the Philippines was known to him.

### Where Gossip Would Die.

An Associated Press man in London has discovered an interesting old inscription over the door of LORD GEORGE's new residence in Chelsea:

"Let no one bear beyond ye threshold words uttered here in friendly confidence."

If that adjuration were inscribed over every door and strictly obeyed wars, neighbors' quarrels, divorces, lawsuits, even murders and assaults, would be greatly reduced in number. The ball of evil talk would have no path in which to roll.

In fact, if everybody stopped telling what he heard in his friend's house "in confidence" there would soon be no rumors or slanders. Gossip would die in the place where it was born.

The esteemed Weather Bureau of the United States Government might do its part for the conservation of sound English if instead of prognosticating "unsettled with probably showers" it would prognosticate "unsettled, probably with showers." It is a little thing, but it would count. There are many kinds of showers, but never was there a probably shower; that is, within the memory of the oldest inhabitant.

Broadway declined to buy fifty cent pieces for twenty-five cents each the other day. In a change in metropolitan manners indicated by the fact that in bygone days when FARMER KNICKERBOCKER's sons and daughters were tested in this way as to their suspicious dispositions double eagles were vended at the rate of \$15 apiece?

Bachelors may not be taxed in this country, but there are effective ways of humbling them, such as the plan of a Bronx theater to admit free during its anniversary week all couples with a marriage license to show that they and the theater are celebrating their anniversary simultaneously. No bachelors need apply.

Even proverb has to be adapted to the needs of a utilitarian world. The bull that escaped from its keepers in Point Pleasant, West Virginia, the other day departed from the traditional place of retreat in such circumstances and took refuge in a restaurant. Thus does every age adapt its wisdom to its character.

In Mulken, Manchuria, they are using some of the horse cars which rattled over our croton-streets thirty years ago. Some day, perhaps, a one time Bronx express will whiz through the Belgian Congo.

### After Grief.

This sorrow that now seems too sharp to bear,

That even dulls the fragrance of the spring,

And through whose pale no loveliness may bring

Its solace, nor a word of comfort far,

Shall later lead one sympathy to share.

The grief of others, and to understand

The glance indifferent and withdrawn

Of those enmeshed in pain's bewildering snare.

And later, too, one shall look back on this

As on the memory of a distant joy,

And recall how exquisite Love's kiss,

And how his beauty held no least

Ill.

Since grief, when time has dimmed its

searing light,

Is but this shadow of a past delight.

CHARLOTTE BUCKER.

North Carolina, Cape Lookout, and trim your sails; Hatteras and shifting gales; Albemarle and Pamlico. Where the oyster boats all go: Kitty Hawk and Currituck; Mallow, canvasback, black duck; Calabash, Corolla, Croton; Old North State, the only and only!

Micro, Monbo, Mackays Ferry, Pender, Corapeake, Gumberry, Mattamuskeet, Colnagah, Mana, Stump Point Bay, Naghead, Cana. Devon, Kitch, Cataraugus, Bushaw, Pasquotank, Puga, Catawba, Logansport, Core, Soupperson—Old North State sure signs a song!

Raleigh, Cogdell, Hubert, Shocco, Egan, Alden, Jettison, Lehigh, Glendon, Clayport, Ernal, Vander, Chocowinity, Aulander, Slim, Wake Forest, Wacoamaw, Perivett, Harbinger, Waxhaw, Perquimans, Old Sparta, Closs—Old North State puts it across!

Pasley, Teachey, Shins, Holsclaw, Kehukee, Belcoron, Bargaw, Yeakling, Swanquarter, Ola, Turnage, Moyton, Floss, Menola, Gover, Glass, Marines, Plateau, Catfish, Crouse, Croft, Calico, Whitener, Cabin, Exum, Neuse—Old North State, the extra muss!

Abahere, Tacklin, Link, Devotion, Spray, Cape Fear that fronts the ocean, Surl, Solitude, Ashpole, Old Dock, Semora, Colateral, Maycock, Babcock, Ciba, Teno, Bushaw, Snowsaw, Silkhope, Saxapahaw, Stribley, Whynot, Bules, Honey—Old North State is in the money!

Peanut, Scotland Neck, Grag, Fly, Whinn, Kautsky, St. John, Sully, Maiden Chronicle, Chiles, Grit, Cabarrus, Gudgeon, Gunneke, Britt, Tillery, Hays, Adoniram, Cozart, Shallott, Siturum—alam! Ash, Klines Mountain—patrols arm! Old North State—Whit, Puller, Charm. MATTHEW MORRIS.

### Two Lives Span 155 Years.

Record of the Grandfather of Edison and His Son.

TO THE NEW YORK HERALD: I beg to call your attention to the fact that there is living to-day a man whose father was born 155 years ago, nine years before the Declaration of Independence.

I refer to FORDICE WARNER EDISON of Loraine, Ohio, 90 years of age, who was born in Loraine, Ohio, July 13, 1827. He was a son of Samuel Edison, Sr., who was born in Essex county, New Jersey, on March 7, 1767, and died in Elgin county, Ontario, on March 27, 1865, aged 98 years and three weeks.

This Samuel Edison, Sr., was the grandfather of Thomas A. Edison, the inventor.

### Schoharie's Flop.

Tammany's Treatment of Sulzer One of the Causes Ascribed.

TO THE NEW YORK HERALD: I have a summer residence in Schoharie county and have spent the last ten summers there, so I know something about it and the people in it.

Schoharie was for years the one rock ribbed Democratic county in the State of New York, and even went for Bryan in 1896, and it was the only county in the State he carried. Many old line Democrats in Schoharie tell me they are against the Democratic party and would be as long as they live on account of Tammany's treatment of Governor Sulzer.

Sulzer, running on an Independent ticket in 1914, came within a couple of hundred votes of carrying the county against Whitman, and many say he did carry it, with Glynn's very poor third.

This in my opinion is the real reason Schoharie has left the Democratic fold, probably never to return.

### Our One Play Dramatists.

Albert Stern on the Needs of the Theater in America.

TO THE NEW YORK HERALD: Your editorial article regarding American playwrights who fail to follow their first successful play with others as good or better is a comment on a great deal of the art production in this country.

The main reason, it seems to me, for this significant trouble in the theater is found in these considerations:

First—In the star system, which is mainly concerned with raising personal salaries to hasty but very often false prominence.

Second—In the hurry up make it pay methods of the theatrical manager hunting not for good plays but for successes to fill too many theaters.

Third—In the long run.

Fourth—In the marked favor shown to foreign playwrights and productions.

Fifth—In the nondiscriminating attitude of our audiences. Perhaps it might be wise to allow these showings and once for a time at least to express their feelings in the theater, their displeasure as well as their pleasure. Audiences are allowed this privilege in the older countries. True, it might interfere with box office receipts, but it should serve to curb the chance methods of managers and cause them to employ a more judicious selection of the theater to rent and select plays to watch, follow and encourage the work of the American playwright and actor.

There is drama in every nook and corner of this land. This native matter offers the real themes for our playwrights and I believe I am right in saying that when such matter has been well handled the public has invariably responded. Let us recall our countrymen Howard with "Newport," Franklin Fyles and David Belasco with "The Girl I Left Behind Me," Augustus Thomas with "The Witches Hour," "Arizona," and "Alabama," Clyde Fitch, Eugene Walter, James Forbes and O'Neill.

To have great poets, said Walt Whitman, we must have great audiences. To have great playwrights we must have great managers and capable men of the theater to rent and select plays to watch, follow and encourage the work of the American playwright and actor.

In painting, in literature and in the theater especially, we are to-day the victims of a flood of material cooked up for the ephemeral market, stuff made to be sold, but which has little or nothing to do with the sincere work of creative art.

ALBERT STERN.

### The Social Whirl in Arkansas.

From the Conway Look Cabin.

Several from here attended the "possum" given by Mr. Dunaway.

We have had the public will patronize it on one place and the other at another.

CHARLOTTE BUCKER.

## Earthquakes and Their Causes

Science Has Learned a Good Deal About Them but Has Not Discovered a Means of Forecasting Them.

The rock envelope or outer layer of the earth, often called the crust, seems rigid and brittle but is really elastic. Any force which jars the earth produces vibrations or tremors; and when these become sufficiently powerful to be felt by man they are called earthquakes. These shocks originate at a considerable distance below the surface of the earth and when they reach the surface they spread out much like the circular waves seen when a stone is thrown into still water.

Near the center of the shock they seem almost like hard blows; at a distance they become tremblings which gradually disappear. The explosion of heavy blasts produces shocks which differ from nature's earthquakes in energy only. The blowing up of Hell Gate rock was felt forty miles away. The numerous explosion which shattered the windows of lower Manhattan during the war stopped the chronograph clocks in the weather bureau laboratory at Mount Vernon. As a matter of fact, artificial earthquakes resulting from mine explosions have been used in Europe for the study of earthquake phenomena; in the future it is likely that they will be extensively employed for that purpose.

Earthquake vibrations travel very rapidly. As they traverse the rock layer they progress with a velocity estimated at from 100 to 150 miles a minute. The earth waves created in the ocean move more slowly. Their velocity varies from six to ten miles a minute.

Of the various causes of earthquakes two have been pretty thoroughly investigated. In volcanic regions explosive displacements of subterranean steam or other gases cause violent and destructive shocks. As a rule shocks of this kind are almost momentary, each lasting from a few seconds to a minute. Sometimes they precede a volcanic eruption; sometimes a volcanic eruption produces a series of earthquakes.

The eruption of Krakatoa, a volcano near Java, was coincident with a severe earthquake; the volcanic explosion itself caused the earth tremors.

But a fundamental cause of earthquakes is the gradual adjustment of the rock envelope around a shrinking core. The great mountain systems with their wrinkles, folds and block ranges are the result of such adjustment. The rock layer folds itself about the shrinking interior not by bending but by innumerable fractures or breaks. The breaks and shearings of the various strata which form the crust are the faults of the geologist. Some of the faults thus produced are hundreds of miles in length; others are almost insignificant in extent. One may see many of the minor faults along the rock outcrops of the New York Westchester and Boston Railway. The parallel seams in the granite rock are faults; and where the shearing occurs the rock has been thrust upward, or downward, or sideways. These displacements are slight and the shock due to the breaking may have been imperceptible.

But when the shearing and the displacement are sudden, aggregating ten, twenty or even fifty feet, thrusting billions of tons of rock out of place, there occurs the jars and tremors that make the earth tremble over an area of several thousand square miles. If the displacement occurs little by little at intervals the shocks may last for days and even months. Not very much adjustment is going on along the Appalachian Mountains; for these ranges are old as mountain making goes. But the great Cordillera which encircles the Pacific Ocean is comparatively young and folding and faulting are manifest in the great number of disastrous shocks, especially in the Andean ranges and in the Japan chain of islands.

The earthquake which wrought disaster to San Francisco in 1906 was due to thrusts and displacements along a fault several hundred miles in length. The character of the displacements varied—an upthrust here, a slip downward there, but always a rift with its edges pulled apart. Dr. Omori, the Japanese seismologist, who is probably the foremost authority on the subject, laid especial emphasis on the fact that the strain was diagonal. Roads, fences and walls lying across the fault were pulled or crushed, and the buildings were torn to shreds.

The rift of the Charleston earthquake was probably quite as severe as that of California; but the buildings were substantial and less damage resulted from the shocks. The California earthquake of 1906 was not so severe, but the buildings were less able to resist the shocks after nearly forty years of weathering. The chief cause of disaster in San Francisco was not the shock; it came from the breaking of the water mains which lay across the fault.

In many instances displacements of the rock layer have created depressions which in time became lake beds—some by sudden faulting, others by slow and gentle movements. Geologists have inferred that the North American Great Lakes, whose beds extend many feet below sea level, were formed by slow warping displacements.

A clearer case is the New Madrid displacement. This case involved a series of earthquakes covering the period from December, 1811, far into 1812. The region involved extended from southeastern Missouri into Arkansas. The testimony of witnesses shows that the tops of black walnut and other bottom land trees were covered by the water which gathered within the depressions. The lakes and ponds within the sunken area were greatly enlarged and new lakes were created. To this day the area is known as the sunk region. The quakes and tremors were due to sudden earth movements.

Many displacements have occurred in localities where the rock layer is covered by the sea. Such movements have created the tremendous waves popularly known as tidal waves. The Lisbon earthquake of 1755 was an instance. The shattering of the walls of buildings drove the frightened people to the quay and the seashore, where they might escape falling walls. Then huge waves rolled in from the sea and engulfed them. At the docks the Tagus River rose forty feet above its ordinary level.

Tidal waves are common enough along the Pacific coast of South America. In 1868 a severe shock wrought havoc in the region around Arica, then a lively port of 20,000 population in Peru and now a small seaport of about 10,000. The United States warship Waterhen, then at anchor in the port, was carried high on the crest of the wave and dropped gently in a stream bed several miles inshore.

The recent shocks along the Chilean coast have again brought up the question of extraterritorial causes of earthquakes and also the discussion of the possibility of forecasting them. At least one theory, that of the electrical origin of quakes, may be dismissed as ingenious and interesting but without evidence to substantiate it.

A small class of theorists who attribute many of the things which vex humanity to planetary influences assert that planetary positions account for the occurrence of earthquakes. Certain it is that the conjunction of several planets exert a theoretical strain, but their combined attraction is not sufficient to produce a measurable tide in the ocean; it is negligible compared with that of the moon. If the conjunction of several planets produces enough gravimetric force to create a measurable tide the tide is too inconsiderable to be measured.

When we consider the possible force of the moon the question is more promising. The attractive force of the moon is sufficient to mass a volume of water several thousand miles in width, extending theoretically from pole to pole. The tide in question has a midocean depth of about three miles. There are two of these tides and in turning upon its axis the earth slips under each one in a period a little more than twelve hours. To express in figures the weight of the water thrown upon a given area would have but little meaning. The observations of Alexis Perrey show pretty positively that earthquakes are rather more frequent when the moon is on the meridian than when it is on the horizon, therefore the influence of the tide. Perrey has shown also that earthquakes are rather more frequent when the moon is nearest the earth and when the earth is nearest the sun.

This does not mean that the moon's attraction and the massing of the tide cause earthquakes. It does indicate, however, that the attraction of the sun and the moon may have a measurable effect in fixing the time at which they occur. That is, when an earth strain not quite sufficient to break the rock layer occurs the position of the sun and the moon may advance or it may retard the time of occurrence.

Perhaps the time will come when earthquakes may be forecast as weather forecasts are made; but the time is not now. The sonic depth finder recently put into use as a very practical apparatus for measuring sea depths will certainly give new and better methods for finding the focal point of earthquakes which originate below the sea bottom cause the destructive tidal waves, but it will not help in the matter of forecasting earthquakes.